# QuickSpecs HPE Ethernet 10/25Gb 2-port 631 Adapter
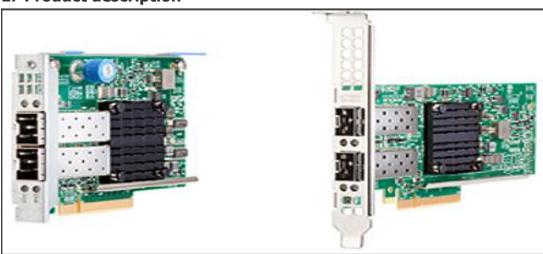
## Overview

## HPE Ethernet 10/25Gb 2-port 631 Adapter

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## 1. Product description



The HPE Ethernet 10/25Gb 2-port 631 adapters (Include HPE Ethernet 10/25Gb 2-port 631FLR-SFP28 adapter and HPE Ethernet 10/25Gb 2-port 631SFP28 adapter) for ProLiant Gen10 rack and Apollo servers are ideally suited for both cloud and enterprise workloads, while delivering enhanced virtualization, performance, latency and congestion avoidance capabilities

# **QuickSpecs** HPE Ethernet 10/25Gb 2-port 631 Adapter

## 2. Product features

| Feature | Description |
|---|---|
| Kit contents | HPE Ethernet 10/25Gb 2-port 631FLR-SFP28 adapter<br><br>Quick install card<br><br>Product warranty statement<br><br>HPE Ethernet 10/25Gb 2-port 631SFP28 adapter<br><br>Quick install card<br><br>Product warranty statement<br><br>Low-profile bracket |
| ProLiant server support | DL360 Gen10 (631FLR-SFP28, 631SFP28)<br><br>DL380 Gen10 (631FLR-SFP28, 631SFP28)<br><br>DL560 Gen10 (631FLR-SFP28, 631SFP28)<br><br>Apollo 6000 - XL230k Gen10 (631SFP28) |
| At a glance features | Dual 10/25Gb ports provide up to 100 Gb/s of bi-directional Ethernet bandwidth<br><br>Jumbo frame<br><br>FlexibleLOM (631FLR-SFP28) or stand up (631SFP28)<br><br>HPE sea of sensors 3D<br><br>Tunnel offload (NVGRE and VXLAN)<br><br>RDMA over Converged Ethernet (RoCE v1, RoCE v2)<br><br>Single-Root Input/Output Virtualization (SR-IOV)<br><br>IPv6 acceleration<br><br>Preboot eXecution Environment (PXE)<br><br>Wake On Lan (WOL)- (Only 631FLR-SFP28)<br><br>Checksum and segmentation offload<br><br>VMware NetQueue and Microsoft Virtual Machine Queue (VMQ)<br><br>Data Plane Development Kit (DPDK)<br><br>Receive-Side Scaling (RSS)<br><br>Large Receive Offload (LRO), Generic Receive Offload (GRO), Receive Side Coalescing (RSC)<br><br>Accelerated Receive Flow Steering (ARFS)<br><br>Active Health Systems (AHS) support<br><br>Security features - Digitally signed firmware components, secure firmware loading, secure firmware update, UEFI secure boot<br><br>Authentication of digitally signed firmware through true HW root of trust and chain of trust on the NIC<br><br>Additional security features include: Device-level firewall, audit logs and sanitization |
| Throughput (Theoretical bandwidth) | This adapter delivers 50 Gb/s bi-directional Ethernet transfer rate per port (100 Gb/s per adapter), providing the network performance needed to improve response times and alleviate bottlenecks |
| Audit logs | Audit logs are a forensics capability that provides traceability into authenticated firmware updates by capturing changes in standard system logs |

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| Authenticated updates | Authenticated updates brings cryptographic keys onto the NIC (For HW Authentication) to protect user and configuration data from unauthorized access and verify digitally signed firmware |
| Checksum and segmentation offload | Normally the TCP Checksum is computed by the protocol stack. Segmentation Offload is technique for increasing outbound throughput of high-bandwidth network connections by reducing CPU overhead. The technique is also called TCP segmentation offload (TSO) when applied to TCP, or Generic Segmentation Offload (GSO) |
| Device-level firewall | Device-level Firewall blocks any unmanaged access to memory or storage. This ensures that on-device firmware and configuration data can only be accessed by authorized agents |
| DPDK | This adapter supports DPDK with benefit for packet processing acceleration and use in NFV deployments |
| Form factor | This adapter series offers both FlexibleLOM and stand up |
| Sea of sensors 3D | Support for the HPE sea of sensors which is a collection of 32 sensors that automatically track thermal activity – Heat – Across the server |
| HW root of trust | Root of Trust enables a chain of trust for Authenticating updates to firmware via signature validation. This blocks installation of rogue or corrupted firmware and ensures that the executing firmware is trusted |
| IPv6 | IPv6 uses 128-bit addressing allowing for more devices and users on the internet. IPv4 supported 32-bit addressing |
| Jumbo frames | This adapter supports Jumbo Frames (Also known as extended frames), permitting up to a 9,600 byte (KB) transmission unit (MTU) when running Ethernet I/O traffic. This is over six times the size of a standard 1500- byte Ethernet frame. With Jumbo Frames, networks can achieve higher throughput performance and greater CPU utilization. These attributes are particularly useful for database transfer and tape backup operations |
| Management support | HPE 631 series adapter ships with agents that can be managed from HPE Systems Insight Manager (SIM) or other management application that support SNMP |
| PXE | Support for PXE enables automatic deployment of computing resources remotely from anywhere |
| RoCE v2 | This adapter supports RoCE v1 and v2. RoCE v2, also sometimes called Routable RoCE which adds Concurrent RoCE v1 and v2 support, SR-IOV support, QoS with hierarchical TX scheduling, ECN-based congestion control for RoCE v2 |
| Receive Side Scaling (RSS) | RSS resolves the single-processor bottleneck by allowing the receive side network load from a network adapter to be shared across multiple processors |
| Sanitization | Sanitization (Secure user data erase) renders user and configuration data on the NIC irretrievable so that NICs can be safely repurposed or disposed |
| Secure boot | Secure boot safeguards the system and ensures no rogue drivers are being executed on start-up |
| Server integration | This adapter is a validated, tested, and qualified solution that is optimized for HPE ProLiant servers. HPE validates a wide variety of major operating systems drivers with the full suite of web-based enterprise management utilities including HPE Intelligent Provisioning and HPE Systems Insight Manager that simplify network management |

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| Single-Root I/O virtualization | Single-Root I/O Virtualization (SR-IOV) provides a mechanism to bypass the host system hypervisor in virtual environments providing near metal performance and server efficiency. SR-IOV provides mechanism to create multiple Virtual Functions (VFs) to share single PCIe resources<br><br>The device is capable of SR-IOV, and requires Server BIOS support, controller firmware, and OS support |
| Tunnel offload | Minimize the impact of overlay networking on host performance with tunnel offload support for VXLAN and NVGRE. By offloading packet processing to adapters, customers can use overlay networking to increase VM migration flexibility and virtualized overlay networks with minimal impact to performance<br><br>HPE Tunnel Offloading increases I/O throughput, reduces CPU utilization, and lowers power consumption<br><br>Tunnel Offload supports VMware's VXLAN and Microsoft's NVGRE solutions |
| Wake-on-LAN | This adapter provides Wake-on-LAN (WoL) support through the PCI Express bus. A system that supports Wake-on-LAN can remain available to the systems administrator during its normal downtime<br><br>Once the machine is awakened, the systems administrator can remotely control, audit, debug, or manage the machine – (Only supported on 631FLR-SFP28) |
| VMware NewQueue and Microsoft Virtual Machine Queue (VMQ) | VMware NetQueue is technology that significantly improves performance of 10 Gigabit Ethernet network adapters in virtualized environments<br><br>Windows Hyper-V VMQ (VMQ) is a feature available on servers running Windows Server 2008 R2 with VMQenabled Ethernet adapters<br><br>VMQ uses hardware packet filtering to deliver packet data from an external virtual machine network directly to virtual machines, which reduces the overhead of routing packets and copying them from the management operating system to the virtual machine |

## 3. Software overview

| Feature | Description |
|---|---|
| Operating Systems (OS) and virtualization | Linux<br><br>Red Hat Software<br><br>SUSE Software<br><br>Microsoft Windows Server<br><br>VMware<br><br>The OS supported by this adapter are based on the server OS support |